

In th Claims

CLAIMS

1. (Currently Amended) A device for mounting an optical element, for example a lens element in a lens, especially in an exposure lens in micro lithography, ~~having~~ comprising the following features:

a) the optical element is provided in its edge zone with support points,
b) counterbearing points are disposed opposite the support points of the optical element in an outer mounting,

c) bearing members are disposed between the support points and the counterbearing points, ~~and~~

d) the bearing members are provided with spherical surfaces directed toward the support points, wherein the optical element freely rests upon the bearing members, and

wherein the support points, the counterbearing points and the bearing members form a three-point bearing with a planar support, a groove-shaped support and a fixed-point support.

2. (Original) The device as claimed in claim 1, wherein the edge zone of the optical element with the support points possesses a at least approximately flat surface.

Claim 3 (Canceled)

4. (Currently Amended) The device as claimed in claim 3 1, wherein the extension of the longitudinal axis of the groove-shaped support runs through the fixed-point support which is formed by a conical receiving part.

5. (Original) The device as claimed in claim 1, wherein the optical element is provided in the edge zone with relief grooves for isolating the working zone of the optical element from mechanical stresses.

6. (Original) The device as claimed in claim 1, wherein a securing device for securing in the direction of the optical axis is provided on the side of the optical element opposite the support points.

7. (Original) The device as claimed in claim 6, wherein the securing device is connected to the optical element via an adhesive bond.

8. (Original) The device as claimed in claim 6, wherein the securing device is matched, in terms of its thermal expansion, to the thermal expansion of the optical element.

9. (Original) The device as claimed in claim 6, wherein the securing device is provided with a securing member which is adjustable relative to the optical element.

10. (Original) The device as claimed in claim 1, wherein the top of the edge zone of the optical element is precision-lapped to microroughness.

11. (Original) The device as claimed in claim 1, wherein the optical element is a corrective lens in an exposure lens in micro lithography.

12. (Original) The device as claimed in claim 1, wherein the support points lie at an angle with respect to a plane which lies at right angles to the optical axis.

13. (Original) The device as claimed in claim 12, wherein the support points are formed by V-shaped grooves or channels, the longitudinal axes of which are directed toward the optical axis.

14. (Original) The device as claimed in claim 1, wherein the support points are formed by V-shaped grooves or channels, the longitudinal walls of the grooves or channels lying at an angle with respect to one another.

15. (Original) The device as claimed in claim 1, wherein the counterbearing points, by means of which the bearing bodies are connected to one another, lie at an angle with respect to a plane which lies at right angles to the optical axis.

16. (Original) The device as claimed in claim 15, wherein those sides of the counterbearing points which face toward the outer mounting run obliquely with respect to the optical axis, and wherein the outer mounting has the same inclination, at least in the regions on which the counterbearing points rest.

17. (Original) The device as claimed in claim 12, wherein the counterbearing points are displaceable in the radial direction.

18. (Currently Amended) A device for mounting an optical element, for example a lens element in a lens, especially in an exposure lens in micro lithography, ~~having~~ comprising the following features:

- a) the optical element is provided in its edge zone with support points,
- b) counterbearing points are disposed opposite the support points of the optical element in an outer mounting,
- c) bearing members are disposed between the support points and the counterbearing points,
- d) the bearing members are provided with spherical surfaces directed toward the support points, and

wherein the support points, the counterbearing points and the bearing members form a three-point bearing with a planar support, a groove-shaped support and a fixed-point support.

19. (Currently Amended) A device for mounting an optical element, for example a lens element in a lens, especially in an exposure lens in micro lithography, ~~having~~ comprising the following features:

- a) the optical element is provided in its edge zone with support points,
- b) counterbearing points are disposed opposite the support points of the optical element in an outer mounting,
- c) bearing members are disposed between the support points and the counterbearing points,
- d) the bearing members are provided with spherical surfaces directed toward the support points, and

wherein the optical element is provided in the edge zone with relief grooves for isolating the working zone of the optical element from mechanical stresses.

20. (New) A device for mounting an optical element, for example a lens element in a lens, especially in an exposure lens in micro lithography, comprising the following features:

- a) the optical element is provided in its edge zone with support points,
- b) counterbearing points are disposed opposite the support points of the optical element in an outer mounting,
- c) bearing members are disposed between the support points and the counterbearing points,
- d) the bearing members are provided with spherical surfaces directed toward the support points, wherein the optical element freely rests upon the bearing members, and

wherein a securing device for securing in the direction of the optical axis is provided on the side of the optical element opposite the support points.

21. (New) The device as claimed in claim 20, wherein the securing device is connected to the optical element via an adhesive bond.

22. (New) The device as claimed in claim 20, wherein the securing device is matched, in terms of its thermal expansion, to the thermal expansion of the optical element.

23. (New) The device as claimed in claim 20, wherein the securing device is provided with a securing member which is adjustable relative to the optical element.

24. (New) The device as claimed in claim 20, wherein the top of the edge zone of the optical element is precision-lapped to microroughness.

25. (New) The device as claimed in claim 20, wherein the optical element is a corrective lens in an exposure lens in micro lithography.

26. (New) The device as claimed in claim 20, wherein the support points lie at an angle with respect to a plane which lies at right angles to the optical axis.

27 (New) The device as claimed in claim 20, wherein the support points are formed by V-shaped grooves or channels, the longitudinal walls of the grooves or channels lying at an angle with respect to one another.

28. (New) The device as claimed in claim 20, wherein the counterbearing points, by means of which the bearing bodies are connected to one another, lie at an angle with respect to a plane which lies at right angles to the optical axis.

29. (New) A device for mounting an optical element, for example a lens element in a lens, especially in an exposure lens in micro lithography, comprising the following features:

- a) the optical element is provided in its edge zone with support points,
- b) counterbearing points are disposed opposite the support points of the optical element in an outer mounting,
- c) bearing members are disposed between the support points and the counterbearing points,
- d) the bearing members are provided with spherical surfaces directed toward the support points, wherein the optical element freely rests upon the bearing members, and

wherein the optical element is a corrective lens in an exposure lens in micro lithography.

30. (New) The device as claimed in claim 29, wherein the edge zone of the optical element with the support points possesses a at least approximately flat surface.

31. (New) The device as claimed in claim 29, wherein the extension of the longitudinal axis of the groove-shaped support runs through the fixed-point support which is formed by a conical receiving part.

32. (New) The device as claimed in claim 29, wherein the top of the edge zone of the optical element is precision-lapped to microroughness.

33. (New) The device as claimed in claim 29, wherein the support points lie at an angle with respect to a plane which lies at right angles to the optical axis.

34 (New) The device as claimed in claim 29, wherein the support points are formed by V-shaped grooves or channels, the longitudinal walls of the grooves or channels lying at an angle with respect to one another.

35. (New) The device as claimed in claim 29, wherein the counterbearing points, by means of which the bearing bodies are connected to one another, lie at an angle with respect to a plane which lies at right angles to the optical axis.